

Work Order ID 95214**95214***

Page 1

Thursday, January 10, 2013 8:19:51 AM

Item ID: D4377-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Placard

Start Date: 1/2/2013 Start Qty: 10.00

10

Cust Item ID:

Required Date: 1/18/2013 Req'd Qty: 10.00

10

Customer:

Reference:

Approvals:

Process Plan: M/Date: 13-01-7

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4377	RevA								

100

0.00

100

Purchasing

PURCHASING

Memo

0.00

Purchasing

Issue P/O: 18747
Manufacture as per Dwg D4377
Possible Supplier: Studio Lettrage
Material release note is required

M/ 13-01-7

110

0.00

110

Packaging

Receive & Inspect for Damage & Mat'l Certs

Memo

0.00

Packaging

Ensure material release note is attached

13-01-14 (14)

120

0.00

120

QC

QC6- Inspect dimensions to drawing

Memo

0.00

Quality Control

DAS
15
2.83

13-1-15

10

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>ST 107</u>	0.00							
130									
Packaging	Memo	0.00				<u>10x</u>		<u>50</u>	<u>13-01-14</u>
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00						<u>MCS 13-01-15</u>	
Quality Control									

13-01-15

Picklist Print

Page 1

Thursday, January 10, 2013 8:19:57 AM

Work Order ID: 95214

95214

Parent Item: D4377-1

D4377-1

Parent Item Name: Placard

Start Date: 1/2/2013

Required Date: 1/18/2013

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP revA 11.03.29 new Issue EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4377-1P		Purchased	No			100	Each	0.0000	1	10			
D4377-1P									**				
PLACARD													

1/13/14 *(10)*

18797 95214
113-01-7

FONT: ARIAL WHITE
TEXT HEIGHT: 0.08"
WIDTH: 0.06"

3.61

TURN OFF FLASHING PULSE LIGHTS DURING PROLONGED HOVER OR
GROUND OPERATION OVER CONCRETE OR WATER TO AVOID POSSIBLE
PILOT DISORIENTATION. AT PILOT'S DISCRETION, TURN OFF PULSE LIGHTS
WHEN ENTERING FOG OR HAZE TO PRECLUDE OPTICAL ILLUSIONS OR
SPATIAL DISORIENTATION.

0.88

D4377-1

FONT: ARIAL WHITE
TEXT HEIGHT: 0.06"
WIDTH: 0.04"

D4377-1 PLACARD

RELEASED
2011-03-25
JHP

NOTES:

- 1) MATERIAL: WHITE LETTERS AND LOGO ON BLACK ADHESIVE BACK VINYL.
MANUFACTURED FROM 3M 7 MIL MASKING FILM #8522CP OR AVERY IPM #2031
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: N/A

A NEW ISSUE		RF	11.03.18
REV.	DESCRIPTION	BY	DATE
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. A
MFG. APPR.	RF	D4377	SHEET 1 OF 1
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	PLACARD	NTS
DATE	11.03.18	<small>COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR TRANSMITTED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO18747

Purchase Order Date 1/7/2013

PO Print Date 1/8/2013

Page Number 1 of 1

Order From :

VC-STU001

STUDIO DE LETTRAGE 2001
210 MAIN WEST
HAWKESBURY, ON K6A 2H6
CA

Contact Name

Vendor Phone 613 632 5449

Vendor Fax 613 632 9491

Vendor Account Nbr

Buyer

Brigitte Golden

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D4377-1P <i>SMD</i>	PLACARD	1/9/2013 Yes	10.00 Each	Yours ppd	\$8.0000	\$80.00
Special Inst:			Instructions per DWG: D4377 B95214				
2	D3525-1P	PLACARD	1/9/2013 No	16.00 Each	Yours ppd	\$12.7500	\$204.00
Special Inst:			Instruction per DWG: D3525 B95207				

PO Total:

\$284.00

Change Nbr: 3

Change Date: 1/8/2013

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required - YES NO

Studio de Lettrage

210 Main Street W
Hawkesbury, Ontario K6A 2H6

INVOICE

Invoice No.: 19363
Date: 01/11/2013
Ship Date: 01/10/2013
Page: 1
Re: Order No. WO9055

Sold to:

Dart Aerospace Ltd
1270 Aberdeen
Hawkesbury, Ontario K6A 1K7

Ship to:

Dart Aerospace Ltd
Hawkesbury, Ontario

Business No.: 82500 7651 RT0001

Item No.	Unit	Quantity	Description	Tax	Unit Price	Amount
		10	D4377-1P	H	8.00	80.00
		16	D3525-1P	H	12.75	204.00
			PO # 18747			
			H - HST 13%			36.92
			HST			
Studio de Lettrage HST: #825007651RT0001						
Shipped By: Tracking Number:						
Comment:						
Sold By:						
Total Amount						320.92

****Certificate of Conformity****

Customer:

Studio Lettrage

Purchase Order #:

18747

Packing Slip #:

wo # 9055

Part #: D4377-1P

D3525-1P

Serial #:

Description:

Quantity:

Certification:

We hereby certify that:

1. The above the listed items were manufactured, repaired and/or inspected in accordance with applicable drawings and/or specifications;
2. All work was accomplished in accordance with the Dart Aerospace Purchase Order;
3. Results of all inspections, chemical or physical tests, as well as other evidence, which shows the acceptability of raw materials, parts and/or assembly components are on file and available for inspection at any time.

Authority:

3M

APPROVAL: SANDY COLLIN

DATE:

Signature: Sandy Collin

11 Janvier 2013

Title: Project coordinator.

**Product & Instruction Bulletin 8522**

Release I, Effective September 2008

See Bulletin Change Summary and end of Bulletin

This Bulletin now includes Instruction Bulletin 4.23

Scotchcal™ Changeable Opaque Imaging Media 8522

Product Description**For Thermal Inkjet Printing**

This durable, 7 mil, opaque, changeable film is optimized for use with selected thermal inkjet printers and inks. Ink dries quickly on the film. When overlaminated, it is warranted for medium term, outdoor weatherable graphics, and long term indoor graphics.

**Recommended Types of
Graphics and End Uses**

When constructed and used as described in this Bulletin, these types of graphics and end uses may be warranted by the 3M™ MCS™ Warranty. Please read the entire Bulletin for details.

- First surface images (the image is on top of the film) for opaque posters and signs, including:
 - Graphics for vans, personal vehicles, trucks and buses
 - Novelty posters
 - Retail and point-of-purchase displays
 - Information graphics such as maps and directories
 - Entertainment promotions in museums, zoos, parks, theatres, sports venues
 - Education and presentation graphics
 - Legal and courtroom exhibits
- For flat or simple curved surfaces, with or without rivets, used in vertical ($\pm 10^\circ$) applications

Limitations of End Uses

3M specifically does not recommend or warrant the following uses, but please contact us to discuss your needs or recommend other products.

**Unsuitable End Uses
for This Product**

- Not for electronically cut individual letters and numbers
- Fleet applications in areas that use salt for winter road maintenance
- Application to non-warranted substrates, including wallboard
- Applications subjected to gasoline vapors or spills
- Application to corrugated or highly irregular surfaces or sharply raised areas
- Graphics applied to stainless steel, including stainless steel vehicles
- On flat surfaces with rivets, tenting of 4 to 10 mm around rivets may be expected; rivets may be cut around to eliminate tenting.
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684 for alternatives.

About Water-Based Inkjet Technology

Standard inkjet technology is water based. Water-based chemistry is susceptible to the extremes of heat and humidity. This is a factor in most product constructions on the market. Read the Fabrication, Shelf Life and Storage sections in this Bulletin. Staying in the middle of these ranges always provides optimum performance.

Compatible Products

3M Graphic Materials

For complete details about graphic construction options, recommended uses and durability, refer to the Product Bulletin for the base film or substrate (media) you are using. See **3M Related Literature** at the end of this Bulletin.

This Bulletin provides details about the base film and construction options and warranty. Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

3M Graphic Materials

For complete details about graphic construction options, recommended uses and durability, refer to the Product Bulletin for the base film or substrate (media) you are using. See **3M Related Literature** at the end of this Bulletin.

Film

- 3M™ Scotchcal™ Opaque Imaging Media 8522

Overlamine

- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520

Printers and Inks

HP Designjet Printers

- 2500CP and 2000CP
2800CP and 3800CP
3500CP and 3000CP
- HP Designjet 5000 and 5500
- Z6100

HP Inks

- Designjet CP Ink System UV (pigment-based)
- Designjet CP Inkjet System (imaging ink)
- HP 91 Vivera Ink System

Epson Printers

- Stylus Pro 9500
- Stylus Pro 10000 printer
- Stylus Pro 10600 printer

Epson Inks

- Archival Inks

Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.

Characteristic	Description
Media	7 mil, white, opaque graphic film
Liner	Low-slippage, lay flat paper
Adhesive	Changeable, pressure sensitive
Thickness	Media with adhesive: 7.5 to 8 mil (nominal)
Warranted application substrates	See next page.
Application surfaces	Flat or simple curved surfaces, with or without rivets, used in vertical ($\pm 10^\circ$) applications (no corrugations)
Application temperature range	28° to 110°F (-2° to 43°C) (air and surface)
Removable	For up to one year; see Warranty Information

Characteristic	Description
Warranted application substrates	<p>Some substrates may "out-gas", resulting in tiny bubbles throughout the surface of the graphic. For maximum performance, be sure the substrate you select is properly cleaned and prepared as recommended by the manufacturer. See Instruction Bulletin 5.1 for additional information.</p> <ul style="list-style-type: none"> • Alodine (anodized aluminum) • Automotive panels (automotive painted steel) • Fruehauf (painted aluminum) • FRP (fiberglass reinforced plywood) • Glass • Imron® (polyurethane-painted metal panel) • Acrylic • Sintra™ board <p>Note: Use on any other substrate is strictly on a graphics manufacturer and customer test and approve basis. Test for both adhesion and removal characteristics. The plasticizer in some banner materials may migrate. This may cause the edge of the graphic to peel or lift off of the banner. For optimum performance, follow the guidelines in the section, Creating A Laminated Overlap, on page 4.</p>

Warranty Information

The warranty given in the Product Bulletin that is current at the time you purchased the film is the one that 3M will honor. **The warranties in the following table(s), given in years, are for finished graphics exposed in a vertical exposure in the United States except the Desert Southwest.** See the warranty sections following this table for additional information.

3M™ MCS™ Warranty Durability for Finished Graphics

Construction (film and overlamine on warranted substrate)	HP Printers & Inks		Epson Printers & Inks		Removal
	Outdoor	Indoor	Outdoor	Indoor	
8522/8519	3 years	5 years	2 years	5 years	1 year without chemical strippers or tools
8522/8520					

Warranty and Limited Remedy

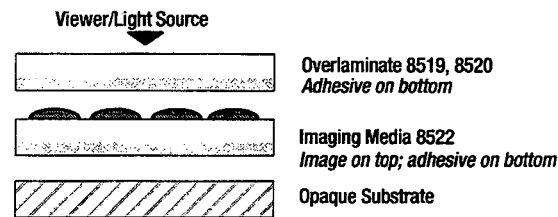
The following is made in lieu of all other express or implied warranties, including any implied warranty of **merchantability** or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade: all 3M products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin. 3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. These remedies are exclusive. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**

See the Graphics Market Center Warranty Brochure, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Graphic Construction Options

Opaque Graphics

Opaque graphics made with imaging media 8522 require an overlaminate and an opaque substrate.



Fabrication

Shop Temperature

Acceptable: 60° to 95°F (15° to 35°C)
Optimum: 65° to 73°F (18° to 23°C)

Shop Humidity

Acceptable: 20% to 80%
Optimum: 45% to 60%

Condition the Media Before Use

These steps are especially important if you are operating outside the conditions recommended under Fabrication, above.

- Leave the media in its original packaging until you are ready to condition and use it.
- The day before you need it, remove the media from the box and remove the plastic.
- Condition the media for 24 hours in the same environment as the printer.

Printer Settings for Optimum Quality

Refer to your Hewlett Packard printer manual for detailed operating instructions.

The quality of a printed image depends on a combination of factors: correct media selection, printing software and raster imaging processor (RIP), shop conditions, etc.

The printers qualified to use this media have print mode options that are programmed specifically for these media. Current charts that show the various modes and printing dpi, and the quality results you can expect are available at www.hp.com under the website's support section. We recommend that you print the same image at all of these settings to determine acceptable print and productivity results.

The highest quality settings are usually desirable for backlit applications.

The correct media selection makes most other necessary adjustments to the printer.

- For the HP DesignJet CP 2000 or 3000 series printers, select the **Opaque Vinyl UV** setting.
- For the HP Designjet 5000 series printers, select the **3M Changeable UV** setting or the **HP Durable Gloss UV** or **HP Colorfast Vinyl** setting.
- For the Z series printers, refer to HP's website or printer manuals.

Note: The HP printer settings lay down less ink per pass, which results in better ink absorption and quicker drying times.

- For the HP DesignJet CP 2000 or 3000 series printers, select the **Opaque Vinyl UV** setting.
- For the HP Designjet 5000 series printers, select the **3M Changeable UV** setting or the **HP Durable Gloss UV** or **HP Colorfast Vinyl** setting.
- For the Z series printers, refer to HP's website or printer manuals.

Note: The HP printer settings lay down less ink per pass, which results in better ink absorption and quicker drying times.

Drying Guidelines

Usually, the media can be laminated within 10 minutes after printing. However, especially in high humidity conditions, we recommend waiting 15 to 30 minutes before laminating.

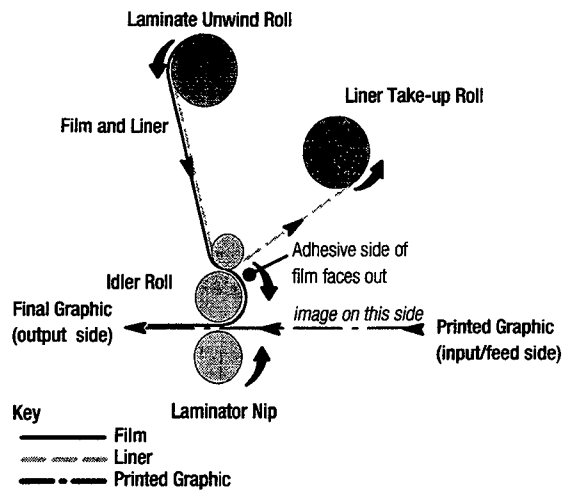
Use care when handling graphics that have not been laminated to avoid scratching and abrasion.

Graphics made with this media and ink combination typically may be wound directly on a take-up roll after printing.

Overlamine

Whether or not you want a warranted graphic, an overlamine is recommended to enhance durability, especially in outdoor applications.

FIGURE 1
Typical Laminator Thread-up



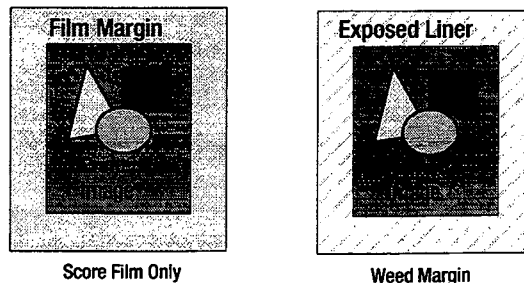
Creating a Laminated Overlap

Creating a laminated overlap helps ensure that the graphic does not peel or lift away from certain banner materials that may be subject to plasticizer migration. This method may also be used for flat, rigid or flexible sign applications.

1. Print the graphic as usual.
2. On all sides of the graphic, score *the film only* to the correct, final graphic dimension *without cutting through the liner*.

Weed away the excess film, leaving the bare liner exposed around the graphic. See FIGURE 2.

FIGURE 2
Trim and Weed Film Margin Only



3. Laminate the graphic as usual (see page 5), making sure that at least one inch of the bare liner is covered by the laminate. See FIGURE 3.